REMARKS

Claims 1-14, 20-26, 29 and 30, drawn to a plant cultivation system for growing salt-tolerant terrestrial plants in saline water, are pending in the above-identified application. The claims are rejected as discussed below. Upon entry of the response, Claims 1-14, 20-26, 29 and 30 remain pending and are presented for further examination.

Rejection of Claims Under 35 U.S.C. §103

Claims 1-14, 20-26 and 29-30 are rejected under 35 U.S.C. §103(a) as allegedly being unpatentable over (1) Murray (U.S. Patent No. 4,888,912, hereinafter referred to as "Murray") in view of Hinman ("Salt water could be key to greener world." CNN, printed June 18, 1996, hereinafter referred to as "Hinman"), or (2) Fischer (U.S. Patent No. 2,175,113, hereinafter referred to as "Fischer") in view of Hinman (*supra*). Applicants respectfully disagree, as discussed below.

Standard for Obviousness

The Patent and Trademark Office has the burden under section 103 to establish a *prima facie* case of obviousness. *In re Piasecki*, 745 F.2d 1468, 1471-72, 223 USPQ 785, 787-87 (Fed. Cir. 1984). To establish a *prima facie* case of obviousness, three basic criteria must be met: first, the prior art reference (or references when combined) must teach or suggest all the claim limitations; second, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings; finally, there must be a reasonable expectation of success. *See* M.P.E.P. §2143. Furthermore, the U.S. Supreme Court has made clear that there must be some perceptible reason to modify the prior art to arrive at the claimed invention. Rejections on obviousness cannot be sustained by mere conclusory statements; instead there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness. *KSR International Co. v. Teleflex Inc.*, 550 U.S. 398, 127 S. Ct. 1727, 82 USPQ.2d 1385 (2007), cited in MPEP 2143.01.

The Claims

The pending claims relate to plant cultivation systems for growing salt-tolerant terrestrial plants in saline water. The systems include a plant support with a flexible buoyant portion that is buoyant in saline water and at least one salt-tolerant terrestrial plant that is in contact with both the plant support and saline water. The system is applicable across a wide range of purposes, from environmental protection to landscaping to crop production. For example, the system can be adapted to accommodate various environmental factors, such as a rise in sea level due to the global warming. Accordingly, Claim 1 recites a plant cultivation system for growing salt-tolerant terrestrial plants in saline water, comprising: (i) a plant support comprising a flexible buoyant portion; and (ii) at least one salt-tolerant terrestrial plant in contact with the plant support, wherein the plant support is buoyant in the saline water, and wherein at least a portion of the plant contacts the saline water. Claims 2-14, 20-26 and 29-30 depend from Claim 1 and contain all the features thereof as well as additional features recited in the claims.

Claims 1-6, 10-14, 34-36 and 29-30 are not obvious over the combination of Murray and Hinman

Claims 1-6, 10-14, 34-36 and 29-30 are rejected under 35 U.S.C. §103(a) as allegedly being unpatentable over Murray (U.S. Patent No. 4,888,912, "Murray") in view of Hinman ("Salt water could be key to greener world." CNN, printed June 18, 1996, "Hinman"). Though the Examiner acknowledges that Murray does not disclose the plant as being salt-tolerant, it is stated that

> . . . hydroponics, growing terrestrial [plants] with little or no soil and water and growing terrestrial plants in floating hydroponics systems is known in the art . . . it would have been obvious to one of ordinary skill in the art at the time of the invention to cultivate a salt-tolerant terrestrial plant of Hinman with the plant support of Murray as a simple substitution of one known element for another in order to provide the predictable result of farming hydroponically with salt water.

Applicants respectfully disagree and submit that the rejected claims are not obvious over the combination of references.

Murray discloses a system for depleting plant nutrient compounds in open bodies of water by cultivating aquatic plants in a container placed in a body of water. The system includes an aquatic plant support (4) of plastic grated material, which is capable of maintaining a plant (6) in position to maximize exposure to the sunlight in water (8). The aquatic plant support (4) can also be solid instead of grated and is preferably made of light weight and rot resistant material such as plastic. To achieve buoyancy, floats (12) are attached either directly to the support or indirectly through a line tied to any point of the support. However, Murray does not teach a system that contains at least one salt-tolerant terrestrial plant, nor does the reference teach a plant support comprising a flexible buoyant portion, wherein the plant support is buoyant in the saline water. First, the reference discloses that the system is designed for cultivating **aquatic plants**, which are not the same as **terrestrial plants**, as recited in the claims. Aquatic plants live or grow on or under water surfaces, whereas terrestrial plants live or grow on land. There is no teaching or suggestion in the reference to cultivate terrestrial plants in the disclosed system, let alone salt-tolerant terrestrial plants. Secondly, the Examiner argues that the Murray "is still seen as disclosing a plant support comprising a flexible buoyant portion . . . [t]he flexible buoyant portion of Murray (10) is capable of floating, if not by itself than by the overall buoyancy of the system, or by the floats (12)." Applicants believe that the Examiner is confusing the phyto-compatible envelope (10) with the plant support (4) in Murray. Murray teaches that floats used to achieve buoyancy are directly or indirectly attached to the plant support (4). The plant support (4) disclosed in Murray is not taught as being flexible. Furthermore, as the plant support is not buoyant in water by itself and requires the attachment of separate floats (12) to the support, the plant support is not taught by Murray as containing a buoyant portion. In contrast, the claims recite a plant cultivation system comprising a plant support comprising a flexible buoyant portion. The recited features are clearly not taught or suggested by Murray.

Moreover, as the Examiner noted, hydroponics, or the science of growing terrestrial plants with little or no soil and water, is well-known in the art. Terrestrial plants that are grown hydroponically must be positioned such that only their roots are submerged in water (or a nutrient solution or medium). A person of skill in the art would recognize that the plant support (4) disclosed in Murray would not support terrestrial plants such that only their roots are

submerged in water. Rather, the plant support of Murray is designed to maintain a plant in position to maximize exposure to the sunlight in water. Thus, the support would be optimally designed for the preferred rootless plant species disclosed in Murray (*see* Murray, column 3, lines 43-57). Thus, a person of skill in the art would not have any reasonable expectation of success that the plant support would be appropriate for cultivation of terrestrial plants, which must be positioned so that only the roots are submerged in water.

Hinman is cited by the Examiner for teaching salt-tolerant terrestrial plants and irrigating salt-tolerant plants with salt water. However, one of skill in the art would recognize that Hinman describes the research of Carl Hodges pertaining to the optimization of **saltwater farming** by growing salicornia crops **on land** and watering the crops by supplying seawater from the ocean via man-made irrigation canals . For example, Hinman states that "Hodges says saltwater farming, by increasing the amount of land covered by plants, will lower the level of carbon dioxide and diminish heat trapped in the Earth's atmosphere. (*See* Hinman, paragraph 8 of article.) In addition, "the runoff from saltwater fields . . . can create new wetlands in surrounding areas, nourishing wildlife." (*See* Hinman, paragraph 9 of article.) Furthermore, in a direct quote from Hodges, "[w]e're trying to green the Earth using sea water along the desert coast to produce food, to reduce global warming and ultimately to produce places where people can live." (*See* Hinman, last paragraph.) Thus, there is no teaching or suggestion of a plant cultivation system for growing salt-tolerant terrestrial plants in saline water, as claimed, and Hinman does not repair the deficiencies of Murray.

In addition, the disclosure of Hinman addresses how seawater could be useful for agriculture of terrestrial plants. In contrast, the disclosure of Murray is directed towards solving environmental pollution in bodies of freshwater using aquatic plants. Accordingly, a person of skill in the art would not be motivated to combine the teachings of Hinman and Murray except by reliance on Applicants' own disclosure, which is impermissible hindsight.

Thus, Applicants respectfully submit that the combination of Murray and Hinman does not teach or suggest all the limitations of the claimed subject matter. Furthermore, a *prima facie* case of obviousness has not been met because there is no reasonable expectation of success from the combined teachings of Murray and Hinman. Finally, there would be no motivation to

combine the teachings of the references other than Applicants' own disclosure. In view of the foregoing, Claim 1 and dependent Claims 2-6, 10-14, 34-36 and 29-30 are not obvious over Murray and Hinman, and withdrawal of the rejection is respectfully requested.

Claims 1, 7-9 and 20-23 are not obvious over the combination of Fischer and Hinman

Claims 1, 7-9 and 20-23 are rejected under 35 U.S.C. §103(a) as allegedly being unpatentable over Fischer (U.S. Patent No. 2,175,113, "Fischer") in view of Hinman (*supra*). Though the Examiner acknowledges that the reference does not disclose the water as being salt water or the plant as being salt-tolerant, it is asserted that

> Hinman teaches salt-tolerant terrestrial plants and irrigating salt tolerant plants with salt water. It would have been obvious to one of ordinary in the art at the time of the invention to substitute a salt-tolerant terrestrial plant in salt water with the plant cultivations (*sic*) system of Fischer as taught by Hinman . . . as a simple substitution of one known element for another in order to provide the predictable result of hydroponically farming a salt-tolerant plant with salt water.

Applicants respectfully disagree and submit that the rejected claims are not obvious over the combination of Fischer and Hinman.

Fischer discloses a seed germinating wafer for the purpose of seed testing as to the germination qualities. The wafer is made up of one (11) or two discs (12, 13) of a floatable material such as cork with a few perforations approximately one-quarter inch in diameter, wherein the discs are preferably one-eighth of an inch in thickness and eight to ten inches in diameter, or larger if desired. A piece of cheese cloth (14), flannel or other suitable fiber or gauze-like product is cemented on the underside of the disc for the purpose of closing the bottoms of the perforations. A person of skill in the art would recognize that the support disclosed in Fischer would not support a terrestrial plant for cultivation. The presence of the cloth (14) or colloidal film (17) on the underside of the wafer would prevent effective support of the terrestrial plant in the wafer; in such a configuration, the terrestrial plant would fall out of the support. Thus, it would be apparent to one of skill in the art that there would be no reasonable expectation of success that the support taught by Fischer would support a terrestrial plant in water, let alone any plant.

In addition, there is no teaching or suggestion in the reference to use the wafers to cultivate plants, let alone salt-tolerant terrestrial plants. The objective of Fischer was to provide a system to facilitate the germination of **seeds**. In contrast, the claims recite a plant cultivation system comprising a plant support comprising a flexible buoyant portion and at least one salt-tolerant terrestrial plant in contact with the plant support. The recited features are clearly not taught or suggested by Fischer.

The deficiencies of Hinman are described above and are repeated here for the Examiner's convenience. Hinman describes the research of Carl Hodges regarding the optimization of **saltwater farming** by growing salicornia crops **on land** and watering the crops by supplying seawater from the ocean via man-made irrigation canals. There is no teaching or suggestion of a plant cultivation system for growing salt-tolerant terrestrial plants in saline water, as claimed. Thus, Hinman does not repair the deficiencies of Fischer. In addition, the disclosure of Hinman addresses how seawater could be useful for agriculture of terrestrial plants. In contrast, the disclosure of Fischer is directed towards facilitating the germination of seeds. Accordingly, a person of skill in the art would not be motivated to combine the teachings of Hinman and Fischer except by reliance on Applicants' own disclosure, which is impermissible hindsight.

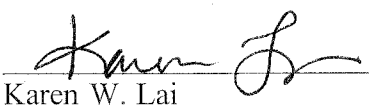
Thus, Applicants respectfully submit that the combination of Fischer and Hinman does not teach or suggest all the limitations of the claimed subject matter. In addition, a *prima facie* case of obviousness has not been met because there is no reasonable expectation of success from the combined teachings of the references. Finally, there would be no motivation to combine the teachings of the references other than Applicants' own disclosure. In view of the foregoing, Claim 1 and dependent Claims 7-9 and 20-23 are not obvious over Fischer and Hinman, and withdrawal of the rejection is respectfully requested.

Conclusion

Applicants submit that the present Application is in condition for allowance and respectfully request the same. If any issues remain, the Examiner is cordially invited to contact Applicants' representative at the number provided below in order to resolve such issues promptly.

Please charge any additional fees, including any fees for additional extension of time, or credit overpayment to Deposit Account No. 04-0258.

Respectfully submitted,

Dated: July 15, 2009 By: 

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